

Application Serial No.: 10/802,892
Amdt. dated January 5, 2006
Reply to Office Action of October 17, 2005

AMENDMENTS TO THE DRAWINGS

In the drawings, please replace Sheet 2/3 of the drawing sheets (showing Figures 2 and 3) with the enclosed "Replacement Sheet" (showing Figures 2 and 3).

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REMARKS/ARGUMENTS

The Office Action dated October 17, 2005 and the references cited therein have been carefully considered. In response to the Office Action, Applicants have amended the drawings, the specification and the claims to address the informal objections set-forth in the Office Action. Applicants have also amended independent Claims 1 and 14 and added new Claim 20 which, when considered with the remarks set forth below, are deemed to place the case in condition for allowance. As a result of the present Amendment, Claims 1-20 remain in the case for continued prosecution.

Drawing Objections

In the Office Action the drawings have been objected to as not showing the Guard tube defined in Claim 10. In response, Applicants submit herewith a Replacement Sheet for the drawings having a revised Figure 2. In particular, Figure 2 has been revised to show a guard tube 80, as defined in Claim 10.

The specification has also been amended accordingly. In particular, paragraph [0041] on page 11 has been amended to include a description of the "guard tube 80." Support for this amendment can be found in paragraph [0014] of the specification as filed. No new matter has been added. Accordingly, it is respectfully submitted that the drawing objections have been overcome.

Specification Objections

The specification has also been objected to in that the phrase "Figure 2" appearing at the bottom of the abstract should be removed. In response, Applicants have removed the objectionable phrase from the abstract. Accordingly, it is respectfully submitted that the specification objection has been overcome.

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Claim Objections

The Office Action further includes a number of claim objections based on various informalities. In response, Applicants have amended the claims to address each informal claim objection set forth in the Office Action. Accordingly, it is respectfully submitted that the claim objections have been overcome.

Prior Art Claim Rejections

Further in the Office Action, Claims 1-6, 8, 9, 12-15, 18 and 19 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,351,117 to Ehling. Claim 7 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Ehling patent in view of U.S. Patent No. 5,041,935 to Aruga et al. Claim 10 has been rejected under 35 U.S.C. § 103(a) over the Ehling patent in view of U.S. Patent No. 5,717,330 to Moreau et al. Claim 11 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Ehling patent in view of U.S. Patent No. 6,053,976 to Takatsuka et al. Finally, Claims 16 and 17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Ehling patent.

In response, Applicants have amended independent Claims 1 and 14 to further define the features of the present invention. Specifically, Claim 1 has been amended to define a method for manufacturing an actuator device, wherein the ends of a wave guide and a return guide are electrically connected and inserted into a wave guide receiving space, which is formed in a housing generally parallel with an actuator receiving space. Similarly, Claim 14 has been amended to define an actuator device including a housing having an actuator receiving space and a wave guide receiving space formed generally parallel to the actuator receiving space. It is respectfully submitted that the cited references, taken alone or combined, do not show these features of the invention.

Applicants have also added a new method Claim 20, which includes the step of forming a cylinder housing having an elongated interior actuator receiving space and an elongated waveguide receiving space extending alongside the actuator receiving space. An actuator is placed in the interior actuator receiver space and includes a position indicating

magnet. The actuator is movably disposed within the housing to define a working stroke having a measurement path length. A position detecting means having a current source, a magnetostrictive waveguide and a return guide is provided, wherein the waveguide and the return guide have disconnected ends and have a length greater than the actuator measurement path length. The actuator measurement path length is then determined and the ends of the waveguide and the return guide are cut to a length corresponding to the determined actuator measurement path length. The cut ends of the waveguide and the return guide are then electrically connected and inserted into the waveguide receiving space of the housing. The position detecting means is then assembled to the cylinder housing to form a fluid power driven actuator device. It is respectfully submitted that the cited references, taken alone or combined, do not show these features of the invention.

In particular, none of the cited references teaches or suggests forming a cylinder housing having an interior actuator receiving space and a wave guide receiving space extending generally parallel alongside the actuator receiving space. For example, the cited Ehling patent only discloses a transducer 10 having a waveguide housing 12 and an electronics housing 14. There is no disclosure in the Ehling patent of a single housing for containing both the waveguide and the actuator. More particularly, there is absolutely no mention in the Ehling patent of an actuator receiving space running parallel with a wave guide receiving space, as defined in Claims 1, 14 and 20.

Instead, the Ehling patent describes a magnet 19 slidingly engaged with the exterior of the waveguide housing 12. It is further stated that the magnet 19 is mechanically connected via a control arm 20 to a movable member 52 within a machine, such as a movable face on a hydraulic press, or a movable spindle on a spindle press. Thus, the Ehling patent is not concerned with a modularly designed actuator device having a position detection means incorporated therein, as claimed in the present invention.

Moreover, none of the cited references disclose a method for forming an actuator device including the steps of cutting the ends of a waveguide and a return guide and inserting the cut ends into a wave guide receiving space, as defined in Claims 1 and 20. Indeed, the Ehling patent, for example, is completely silent as to how the position detecting means 10 is

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assembled or manufactured. Thus, there is absolutely no mention in the Ehling patent of a wave guide and a return guide provided with disconnected ends having a length greater than the actuator measurement path length and then determining the actuator measurement path length and cutting the ends of the waveguide and the return guide to a length corresponding to the determined actuator measurement path length, as defined in new Claim 20.

Instead, the Ehling patent is more concerned with a method for correcting and compensating output pulses from a measurement transducer to mimic the output of a predetermined ideal transducer. As such, the Ehling patent is not concerned with how a fluid power driven actuator is assembled. More particularly, the Ehling patent does not disclose a simple and cost-effective method for manufacturing a linear actuator having a position detecting means, wherein the position detecting means is provided with a wave guide and a return guide which are cut to length upon assembly to form actuators of any desired length.

Accordingly, for all the reasons set forth above, it is respectfully submitted that independent Claims 1 and 14, as amended, as well as the claims that depend therefrom and new Claim 20 all patentably distinguish over the prior art.

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Conclusion

In view of the foregoing amendment and remarks, favorable consideration and allowance of the application with Claims 1-20 are respectfully solicited. If the Examiner believes that a telephone interview would assist in moving the application toward allowance, he is respectfully invited to contact the Applicants' attorney at the telephone number listed below.

Respectfully submitted,



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